IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Arnold P. Kehrli	Art Unit	: 2836
Serial No.	: 10/658,597	Examiner	: Dru M. Parries
Filed	: September 9, 2003	Conf. No.	: 1923
Title	: LOW IMPEDANCE TRANSMISSION LINE WITH A POWER FLOW CONTROLLER		

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Commissioner for Patents
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REPLY BRIEF

This document is submitted in response to the Examiner's Answer ("Answer"), mailed, to Appellant's Appeal Brief ("Appeal Brief"), filed December 23, 2008.

(1) Status of Claims

This is an appeal from the decision of the Examiner in an Office Action dated June 10, 2008, rejecting claims 1, 3-11, and 13-22; and an Advisory Action dated August 7, 2008, rejecting claims 1, 3-11, 13-15, and 19-23. The claims of the invention have been twice rejected.

Claims 1, 3-11, and 13-15, and 19-23 are pending in this application and are the subject of this appeal.

Claims 2, 12, and 16-18 have been canceled.

Claims 1, 3-11, 13-15, and 19-23 have been rejected, as follows:

Claims 1, 3, 5, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication 2003/0183410 ("Sinha") and U.S. Patent 6,344,956 ("Morita").

Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita, and further in view of U.S. Patent 5,878,334 ("Talisa").

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita, and further in view of Japanese Patent 11122793A ("Shimomura").

Claims 8-9 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita, and further in view of U.S. Patent 5,420,495 ("Hingorani").

Claims 10, 11, and 13-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha, Morita, and Hingorani.

Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha, Morita, and Hingorani, and further in view of Shimomura.

Claims 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita, and further in view of U.S. Patent 4,045,823 ("Parton").

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita, and further in view of U.S. Patent Publication 2002/0005668 ("Couture").

Claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinha and Morita.

(2) Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3-11, 13-15, and 19-23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0183410 to Sinha et al. (hereinafter Sinha) in view of U.S. Patent 6,344,956 to Morita et al. (hereinafter Morita).

(3) Argument

The Examiner makes the following statement in the Answer:

> the Examiner believes that Morita teaches a power flow controller (i.e. current limiter/reactor) that performs in the same way as the power flow controller in the Appellant's invention. On page 7, lines 13-18, of the Appellant's specification, it teaches the power flow controller being a reactor that limits "the amount of current that can flow on a line ... by adding their own impedance to the line's normal impedance." This is precisely what Morita's power flow controller does as well. For example, when the current flowing in Morita's superconductor exceeds a critical level, the resistance (i.e. impedance) level in the superconductor is increased, which subsequently decreases the current flowing through the superconductor (Col. 1, lines 47-55).

Appellant respectfully submits that Morita's current-limiting element does not perform in the same way as Appellant's power flow controller. The Examiner points out that the resistance level of Morita's current-limiting element is increased "when the current flowing in Morita's superconductor exceeds a critical level." That is, Morita's current-limiting element responds to an excessively high level of current. Unless such a situation occurs, Morita's current-limiting element performs no function. In contrast, and as discussed in greater detail below, Appellant's power flow controller selectively regulates *during normal operating conditions of the power transmission system* ... the power flowing through the second power transmission line.

The Examiner makes the following statement in the Answer:

> the term "normal operating conditions" is very broad. That term could mean, "whenever current is flowing through said superconductor," and that is how the Examiner interpreted that limitation. Therefore, Morita's power flow controller does selectively regulate the power flowing through said superconductor during normal operating conditions.

Appellant respectfully disagrees with the Examiner's characterization of the term "normal operating conditions."

Claim language must be read in view of the specification as it would be interpreted by one of ordinary skill in the art. "The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification *as it would be interpreted by one of ordinary skill in the art.*" *In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[,70 USPQ2d 1827] (Fed. Cir. 2004) (emphasis added). "Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at 802, 218 USPQ at 292 (quoting *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)) (emphasis in original). It is the use of the words in the context of the written description and customarily by those skilled in the relevant art that accurately reflects both the "ordinary" and the "customary" meaning of the terms in the claims. *Ferguson Beauregard/Logic Controls v. Mega Systems*, 350 F.3d 1327, 1338, 69 USPQ2d 1001, 1009 (Fed. Cir. 2003)

Appellant submits that, in view of the Specification, one of ordinary skill in the art would not interpret the term "normal operating conditions" in the manner suggested by the Examiner (i.e., "whenever current is flowing through said superconductor"). Appellant's power flow controller selectively regulates during normal operating conditions of the power transmission system at least one of the magnitude and direction of the power flowing through the second power transmission line. For instance, when load balancing, contractual arrangements, or flow optimization is desired in a power transmission system, a power flow controller coupled to a transmission line including a superconductor regulates the power flowing through that line to achieve the desired objective (p. 7, lines 1-5). More generally, a power flow controller according to Appellant's invention allows power to be transferred efficiently between locations and allows for a more uniform voltage profile across the system (p. 2, line 30 – p. 3, line 3). These objectives provide examples of the operation of the power flow controller during normal operating conditions of the power transmission system that would guide a person

of ordinary skill in the art in interpreting the claim limitation "during normal operating conditions of the power transmission system."

In contrast, even assuming Morita's current-limiting element was combined with Sinha's power transmission system, the current-limiting element would not operate during normal operating conditions of the power transmission system. Instead, Morita's current-limiting element operates upon detection of an abnormal current (see, e.g., col. 5, lines 27-28; col. 6, lines 7-9). That is, "[i]n the event of a short-circuit accident," Morita's current-limiting element transitions from a superconductive state to a normal conductive state (col. 1, lines 50-55). Morita describes three conditions that are used to determine when the current-limiting element should undergo quenching to effect the transition from superconductive to normally conductive. These three conditions all relate to abnormal situations: the point when the current flowing through the current-limiting element exceeds a set current level, the point when the degree of time variation of a set current value exceeds a certain value, or the point when voltage above a set level is generated in the current-limiting element (col. 6, lines 34-45). That is, Morita's current-limiting element operates only in response to an abnormal situation of current or voltage. Morita's current-limiting element does not operate during normal operating conditions.

Furthermore, Morita's current-limiting element is not even capable of regulating during normal operating conditions of a power transmission system the power flowing through a power transmission line. Morita's current-limiting element operates by quenching to obtain a sudden transition from superconduction to normal conduction (col. 2, lines 66-67). Upon detection of abnormal current, "the current flowing to the superconductor exceeds the critical current, and the heat generated thereby causes transition of the superconductor from a superconductive state to a normal conductive state, thus generating electrical resistance" (col. 1, lines 51-55). The abnormal current itself brings about the quenching of the current-limiting element. During normal operating conditions, however, the current flowing through the current-limiting element would not exceed the critical current, and the superconductor would not be quenched to a normal conductive state. Thus, during normal operating conditions, Morita's current-

limiting element performs no function. Instead, Morita's current-limiting element operates only in response to an abnormal situation.

Therefore, as discussed above and in the Appeal Brief, Appellant respectfully submits that Morita's current-limiting element does not regulate, and furthermore is not even capable of regulating, *during normal operating conditions* of a power transmission system the power flowing through a power transmission line.

The Examiner also makes the following statement in the Answer:

> Also, Morita does teach his power flow controller being coupled to a superconducting cable.

Appellant respectfully disagrees with this statement. The only cable Morita describes as being connected his current-limiting element is a copper lead wire (see, e.g., Examples, cols. 7-12). However, copper is not a superconductor. Morita does not describe the current-limiting element connected to any other type of cable, and certainly not to a superconducting cable.

Furthermore, as discussed in the Appeal Brief, it would be counterintuitive to couple Morita's current-limiting element to a second power transmission line including a superconductor, the second power transmission line in parallel with a first power transmission line. Appellant thus submits that it would not have been obvious to couple Morita's current-limiting element with Sinha's power transmission system.

(4) Conclusion

For at least the foregoing reasons, and the reasons stated in the Appeal Brief, the Appellant submits that the final rejection should be reversed.

Any circumstance in which the Appellant has addressed certain comments of the Examiner, but not others, does not mean that the Appellant concedes the other comments of the Examiner. Rather, in such circumstances that the Appellant has not specifically addressed the Examiner's comments, Appellant relies entirely on the comments presented in the Appeal Brief.

No additional fees are believed to be due. Please apply all charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 30020-189001.

Respectfully submitted,

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